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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,215	10/28/2003	Devlin M. Gualtieri	H0005226	7391

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HONEYWELL INTERNATIONAL INC.
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EXAMINER

SCHINDLER, DAVID M

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,215

Applicant(s)

GUALTIERI, DEVLIN M.

Examiner

David Schindler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 9-14, 16, 18-20 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 11-14, 18, 20 and 25 is/are rejected.
- 7) ☒ Claim(s) 7, 10, 16 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the Request for Continued Examination filed 9/8/2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 20, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ham et al. (Ham) (3,177,711).

As to Claims 1 and 25,

Ham discloses a sensor coil (20), an oscillator circuit ((the components of (24) plus (44), but excluding (28), (40), and (42)) including a capacitive circuit element (44) electrically coupled in parallel with the sensor coil to thereby form a parallel-resonant LC tank circuit (Figure) having a resonant frequency that varies with the proximity of the sensor coil to each of the turbine blades (Column 3, Lines 36-58), the oscillator circuit operable to generate and supply a sensor signal having a frequency that varies based on the resonant frequency of the parallel-resonant LC tank circuit ((Column 1, Lines 42-56) and (Column 3, Lines 36-58)), whereby the sensor signal is a frequency modulated sensor signal, and a frequency modulation (FM) detector circuit ((28) in combination with (40) and (42)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that

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varies with (Column 3, Lines 1-3 and 51-55), and is representative of, the proximity of each of the turbine blades to the non-rotating turbine component ((Column 1, Lines 51-56) and (Column 3, Lines 36-58) and (Column 3, Lines 66-72) and (Column 4, Lines 1-8)).

As to Claim 3,

Ham discloses the FM detector circuit includes an FM demodulator ((Column 3, Lines 66-72) and (Column 4, Lines 1-8)).

As to Claim 20,

Ham discloses a turbine case (Figure), a turbine wheel rotationally mounted within the turbine case (Figure), a plurality of turbine blades extending from the turbine wheel toward the turbine case (Figure), and a turbine blade proximity sensor system including a sensor coil (20) disposed at least partially within the turbine case,, an oscillator circuit ((the components of (24) plus (44), but excluding (28), (40), and (42)) including a capacitive circuit element (44) electrically coupled in parallel with the sensor coil to thereby form a parallel-resonant LC tank circuit (Figure) having a resonant frequency that varies with the proximity of the sensor coil to each of the turbine blades (Column 3, Lines 36-58), the oscillator circuit operable to generate and supply a sensor signal having a frequency that varies based on the resonant frequency of the parallel-resonant LC tank circuit ((Column 1, Lines 42-56) and (Column 3, Lines 36-58)), whereby the sensor signal is a frequency modulated sensor signal, and a frequency modulation (FM) detector circuit ((28) in combination with (40) and (42)) coupled to receive the frequency modulated sensor signal and operable, in response thereto, to

supply a proximity signal having an amplitude that varies with (Column 3, Lines 1-3 and 51-55), and is representative of, the proximity of each of the turbine blades to the turbine case or one of the components mounted thereto ((Column 1, Lines 51-56) and (Column 3, Lines 36-58) and (Column 3, Lines 66-72) and (Column 4, Lines 1-8)).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Oates et al. (herein referred to as "Oates") (4,644,270).

As to Claim 2,

Ham does not disclose a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud.

Oates discloses a display coupled to receive the proximity signal from a detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud (Column 11, Lines 19-32).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the

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turbine blades to the turbine shroud given the above disclosure and teaching of Oates in order to provide a readily available readout to a user.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Iida et al. (6,658,216).

As to Claim 4,

Ham discloses as explained above.

Ham does not disclose the FM demodulator includes a ratio detector.

Iida et al. discloses the FM demodulator includes a ratio detector (Column 6, Lines 33-37).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include the FM demodulator includes a ratio detector as taught by Iida et al. in order to advantageously provide signal demodulation.

7. Claim rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Arms et al. (5,497,147).

As to Claim 5,

Ham discloses as explained above.

Ham does not disclose the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal.

Arms et al. discloses the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal ((Figures 4 and 5) and (Column 2, Lines 33-51).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include the oscillator circuit is configured to wirelessly transmit the sensor signal; and the FM detector circuit is configured to wirelessly receive the transmitted sensor signal as taught by Arms et al. in order to advantageously allow for remote data processing.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Wilkinson (GB 2167603 A).

As to Claim 9,

Ham discloses as explained above.

Ham does not disclose a ceramic core, and a conductor selected from a group consisting of platinum and molybdenum.

Wilkinson discloses a ceramic core and a conductor consisting of platinum (Page 1, Left Column, Lines 51-54).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include a ceramic core and a conductor consisting of platinum as taught by Wilkinson in order to have a sensor that gives a fast and accurate response and can withstand corrosive environments (Page 1, Left Column, Lines 29-33).

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Stowell (4,842,477).

As to Claim 11,

Ham discloses a sensor coil (20), an oscillator circuit ((the components of (24) plus (44), but excluding (28), (40), and (42)) including a capacitive circuit element (44) electrically coupled in parallel with the sensor coil to thereby form a parallel-resonant LC tank circuit (Figure) having a resonant frequency that varies with the proximity of the sensor coil to each of the turbine blades (Column 3, Lines 36-58), the oscillator circuit operable to generate and supply a sensor signal having a frequency that varies based on the resonant frequency of the parallel-resonant LC tank circuit ((Column 1, Lines 42-56) and (Column 3, Lines 36-58)), whereby the sensor signal is a frequency modulated sensor signal, and a frequency modulation (FM) detector circuit ((28) in combination with (40) and (42)) adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with (Column 3, Lines 1-3 and 51-55), and is representative of, the proximity of each of the turbine blades to the non-rotating turbine component ((Column 1, Lines 51-56) and (Column 3, Lines 36-58) and (Column 3, Lines 66-72) and (Column 4, Lines 1-8)).

Ham does not disclose a controller coupled to receive the proximity signal from the FM detector and operable, in response thereto, to control the proximity of the turbine blades to the non-rotating turbine component.

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Stowell discloses controlling the proximity of the turbine blades to the non-rotating turbine component (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include a controller to control the proximity of the turbine blades to the non-rotating turbine component given the above disclosure and the teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

As to Claim 12,

Ham discloses the non-rotating component is either a turbine case or a component coupled to the turbine shroud (Figure).

Ham does not disclose the controller controls the proximity of the turbine blades to the non-rotating turbine component by controlling turbine shroud temperature.

Stowell discloses controlling the proximity of the turbine blades to the non-rotating component by controlling turbine shroud temperature (Abstract, Lines 10-15).

It would have been obvious to a person of ordinary skill in the art to modify Ham to include the non-rotating component is either a turbine case or a component coupled to the turbine shroud, and the controller controls the proximity of the turbine blades to the non-rotating turbine component by controlling turbine shroud temperature given the above disclosure and teaching of Stowell in order to prevent turbine malfunction by preventing blade damage.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Stowell (4,842,477) and in further view of Oates et al. (herein referred to as "Oates") (4,644,270).

Ham in view of Stowell does not disclose a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud.

Oates discloses a display coupled to receive the proximity signal from a detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud (Column 11, Lines 19-32).

It would have been obvious to a person of ordinary skill in the art to modify Ham in view of Stowell to include a display coupled to receive the proximity signal from the FM detector and operable, in response thereto, to supply a visual display of the proximity of each of the turbine blades to the turbine shroud given the above disclosure and teaching of Oates in order to provide a readily available readout to a user.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ham et al. (Ham) (3,177,711) in view of Stowell (4,842,477) and in further view of Davison (4,230,436).

Ham in view of Stowell discloses as explained above.

Ham in view of Stowell does not disclose the controller, in response to the proximity signal, supplies one or more valve control signals, and wherein the system includes one or more valves in fluid communication between a cooling air

source and the turbine shroud, each valve having an actuator coupled to receive one or more of the valve control signals and operable, in response thereto, to selectively move its associated valve between an open position and a closed position, to thereby selectively cool the turbine case.

Davison discloses one valve in fluid communication between a cooling air source, the valve having an actuator that selectively moves the valve between an open position and a closed position, to thereby selectively maintain optimum rotor-to-shroud clearances ((Figures 1 and 8A-8C) and (Column 6, Lines 28-33) and (Column 8, 24-30) and (Abstract, Lines 4-11)).

It would have been obvious to a person of ordinary skill in the art to modify Ham in view of Stowell to include the controller, in response to the proximity signal, supplies one or more valve control signals, and wherein the system includes one or more valves in fluid communication between a cooling air source and the turbine shroud, each valve having an actuator coupled to receive one or more of the valve control signals and operable, in response thereto, to selectively move its associated valve between an open position and a closed position, to thereby selectively cool the turbine case given the above disclosure and teaching of Davison in order to prevent turbine malfunction by preventing blade damage.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over (Ham) (3,177,711) in view of Stowell (4,842,477) and in further view of Wilkinson (GB 2167603 A).

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Ham in view of Stowell discloses as explained above.

Ham in view of Stowell does not disclose a ceramic core, and a conductor selected from a group consisting of platinum and molybdenum.

Wilkinson discloses a ceramic core and a conductor consisting of platinum (Page 1, Left Column, Lines 51-54).

It would have been obvious to a person of ordinary skill in the art to modify Ham in view of Stowell to include a ceramic core and a conductor consisting of platinum as taught by Wilkinson in order to have a sensor that gives a fast and accurate response and can withstand corrosive environments (Page 1, Left Column, Lines 29-33).

Allowable Subject Matter

13. Claims 7, 10, 16, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowance:

As to Claims 7 and 16,

The primary reason for the allowance of claims 7 and 16 is the inclusion of a coaxial cable coupled between the sensor coil and the oscillator circuit, the coaxial cable having a capacitance that acts as at least one of the capacitance circuit elements. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

As to Claims 10 and 19,

The primary reason for the allowance of claims 10 and 19 is the inclusion of a peak detector coupled to receive the proximity signal and operable, in response thereto, to determine a peak value of the proximity signal. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

15. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

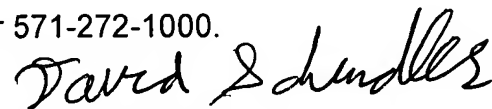
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Schindler
Examiner
Art Unit 2862

DS



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